

**IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF ILLINOIS**

Sloan Valve Company,

Plaintiff

v.

Zurn Industries, Inc. and Zurn Industries, LLC,

Defendants.

Case No. 1:10-cv-00204

Judge: Hon. Amy J. St. Eve

**REPLY IN SUPPORT OF DEFENDANTS' DAUBERT MOTION TO EXCLUDE  
PLAINTIFF'S COMPENSATORY DAMAGES EXPERT**

## TABLE OF CONTENTS

	Page
I. INTRODUCTION .....	1
II. BERO VIOLATED THE FEDERAL CIRCUIT’S RULES.....	1
A. Bero Had to Apportion the Value of the Patented and Accused Products Between Patented and Unpatented Features. ....	1
1. Sloan admits Bero did not apportion the profits he considered. ....	1
2. The apportionment rule applies in every case.....	2
3. Bero cannot avoid the apportionment rule by calculating damages on a per-unit basis. ....	2
4. Bero cannot avoid the apportionment rule by limiting his calculations to revenues earned on sales of MDFVs. ....	3
5. Bero had to prove the basis for customer demand through scientific study of demand sensitivities to invoke the EMVR exception. ....	5
B. Bero Cannot Include in His Calculations Lost Profits Attributable to Sales of Unpatented Collateral Goods.....	8
1. Sloan admits Bero includes lost profits attributable to sales of unpatented collateral goods.....	8
2. Bero cannot avoid the Federal Circuit’s rules regarding lost profits on collateral sales by including the profits in his calculation and calling it a royalty. ....	9
3. Bero failed to satisfy the EMVR for sales of collateral goods. ....	12
C. Bero Cannot Split the Difference Between the Parties’ Positions.....	13
D. Bero Had to Conduct a Scientific Analysis of Price Elasticity.....	15
1. Sloan admits Bero did not conduct an inelasticity analysis.....	15
2. Bero cannot avoid the rule requiring a scientific study of price elasticity. ....	16
E. Bero Cannot Include Price Erosion Damages For Pre-Issuance Conduct. ....	21
III. CONCLUSION.....	22

## TABLE OF AUTHORITIES

	Page
<b>Cases</b>	
<i>Advanced Med. Optics, Inc. v. Alcon, Inc.</i> , 361 F. Supp. 2d 404 (D. Del. 2005).....	18
<i>AVM Technologies, LLC v. Intel Corp.</i> , CIV.A. 10-610-RGA, 2013 WL 126233 (D. Del. Jan. 4, 2013).....	3, 4, 6
<i>Cornell Univ. v. Hewlett-Packard Co.</i> , 609 F. Supp. 2d 279 (N.D.N.Y. 2009), <i>amended</i> , 01-CV-1974, 2009 WL 1405208 (N.D.N.Y. May 15, 2009) .....	9, 11, 12
<i>Cornell Univ. v. Hewlett-Packard Co.</i> , 01-CV-1974, 2008 WL 2222189 (N.D.N.Y. May 27, 2008).....	6, 7, 13
<i>Crystal Semiconductor Corp. v. TriTech Microelectronics Intern., Inc.</i> , 246 F.3d 1336 (Fed.Cir.2001).....	14, 15, 16, 20
<i>Ericsson Inc. v. D-Link Corp.</i> , 6:10-CV-473, 2013 WL 2242444 (E.D. Tex. May 21, 2013) .....	2, 3
<i>Ericsson, Inc. v. Harris Corp.</i> , 352 F.3d 1369 (Fed. Cir. 2003).....	16
<i>Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co Ltd.</i> , CIV. A. 88-1814-MA, 1993 WL 1510657 (D. Mass. Apr. 27, 1993) .....	9
<i>Garretson v. Clark</i> , 111 U.S. 120, 121 (1884).....	5
<i>Grain Processing Corp. v. Am. Maize-Products Co.</i> , 185 F.3d 1341 (Fed. Cir. 1999).....	14, 18
<i>Inventio Ag v. Otis Elevator Co.</i> , 06 Civ. 5377(CM), 2011 WL 3359705 (S.D.N.Y. June 23, 2011).....	6, 7, 8, 13
<i>LaserDynamics, Inc. v. Quanta Computer, Inc.</i> , 694 F.3d 51 (Fed. Cir. 2012).....	4, 6, 7, 13, 14, 18
<i>Lucent Technologies, Inc. v. Microsoft Corp.</i> , 07-CV-2000 H CAB, 2011 WL 2728317 (S.D. Cal. July 13, 2011) .....	2, 3

## TABLE OF AUTHORITIES

	Page
<i>Lucent Technologies, Inc. v. Microsoft Corp.</i> , 837 F. Supp. 2d 1107 (S.D. Cal. 2011).....	3, 4
<i>Micro Chem., Inc. v. Lextron, Inc.</i> , 317 F.3d 1387 (Fed. Cir. 2003).....	11
<i>Minks v. Polaris Indus., Inc.</i> , 546 F.3d 1364 (Fed. Cir. 2008).....	12
<i>Mirror Worlds, LLC v. Apple, Inc.</i> , 784 F. Supp. 2d 703 (E.D. Tex. 2011).....	4
<i>Multimedia Patent Trust v. Apple Inc.</i> , 10-CV-2618-H KSC, 2012 WL 5873711 (S.D. Cal. Nov. 20, 2012).....	2, 3, 13
<i>Powell v. Home Depot U.S.A., Inc.</i> , 663 F.3d 1221 (Fed. Cir. 2011).....	15
<i>Riles v. Shell Exploration and Prod. Co.</i> , 298 F.3d 1302 (Fed.Cir.2002).....	14
<i>Rite-Hite Corp. v. Kelley Co., Inc.</i> , 56 F.3d 1538 (Fed. Cir. 1995).....	11, 13
<i>Slimfold Manufacturing Co. v. Kinkead Industries</i> , 932 F.2d 1453 (Fed. Cir. 1991).....	19
<i>Standard Havens Prods., Inc. v. Gencor Indus.</i> , 953 F.2d 1360 (Fed. Cir. 1991).....	18
<i>SynQor, Inc. v. Artesyn Techs, Inc.</i> , No. 2:07-CV-497, 2010 U.S. Dist. LEXIS 144244 (E.D. Tex. Dec. 13, 2010).....	20
<i>TP Orthodontics, Inc. v. Professional Positioners, Inc.</i> , No. 72–C–697, 1991 WL 187189 (E.D. Wis. July 2, 1991).....	19
<i>Uniloc USA, Inc. v. Microsoft Corp.</i> , 632 F.3d 1292 (Fed. Cir. 2011).....	1, 2, 5, 7, 13, 14

TABLE OF AUTHORITIES

Page

Statutes

35 U.S.C. § 154(d)(1) ..... 21

Other Authorities

*Federal Judicial Center Bench Book,*  
"Compensatory Damages Issues in Patent Cases" 2011 ..... 22

## **I. INTRODUCTION**

Zurn does not challenge Bero's testimony because he relied on disputed facts; Zurn challenges Bero's testimony because Bero (1) did not do what the Federal Circuit requires him to have done to employ the methodology he claims to have adopted, and (2) is not allowed by that methodology to do what he actually did.

What Bero did is undisputed. So, the question presented by Zurn's motion is: what do the Federal Circuit's rules require and allow Bero to do? This is a legal question that the Court must answer; nothing in Zurn's challenge depends on facts that the jury must weigh.

## **II. BERO VIOLATED THE FEDERAL CIRCUIT'S RULES**

### **A. Bero Had to Apportion the Value of the Patented and Accused Products Between Patented and Unpatented Features.**

#### **1. Sloan admits Bero did not apportion the profits he considered.**

The Federal Circuit's apportionment rule is unambiguous: To avoid a damages award that overcompensates the patentee, "the patentee ... *must in every case* give evidence tending to separate or apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features, and such evidence must be reliable and tangible, and not conjectural or speculative." *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1318 (Fed. Cir. 2011).

Sloan argues the rule does not apply to Bero. Dkt. 618, Sloan's Response Brief in Opposition to Zurn's Daubert Motion to Exclude Testimony of Richard Bero ("Sloan Br.") pp. 10-14. Sloan does not deny that Bero did not apportion the profits he considered; Sloan disputes only whether Bero in fact had to apportion them. *Id.* Sloan offers four reasons for Bero's failure to follow the apportionment rule, none of which excuses this important omission: (1) the apportionment rule applies only where the patented invention is a small component of a larger

product; (2) Bero calculated damages based on the number of units Zurn sold; (3) Bero limited his damage calculations to revenues Zurn earned on sales of MDFVs (which Sloan says is the “smallest saleable” infringing unit) and nothing more; and (4) there is purportedly enough evidence for the jury to conclude that the entire market value rule (“EMVR”) exception to the apportionment rule applies. *Id.* at 10, 14. Sloan is wrong on all counts.

**2. The apportionment rule applies in every case.**

First, the apportionment rule applies, and has applied for over a century to each and every case. *Uniloc*, 632 F.3d at 1318 (“[T]he patentee ... *must in every case* give evidence tending to separate or apportion the defendant’s profits and the patentee’s damages between the patented feature and the unpatented features . . .”). It is not limited to cases where the patented invention is a small component of a larger product, as Sloan implies. *See* Sloan Br. p. 10.

**3. Bero cannot avoid the apportionment rule by calculating damages on a per-unit basis.**

Second, an expert can not avoid the apportionment rule by expressing damages on a per-unit basis. *Lucent Technologies, Inc. v. Microsoft Corp.*, 07-CV-2000 H CAB, 2011 WL 2728317 \* 6 (S.D. Cal. July 13, 2011) (rejecting patentee’s attempt to avoid apportionment by calculating damages on per-unit basis). Nor do the cases Sloan relies on contradict this sensible proposition. *See Ericsson Inc. v. D-Link Corp.*, 6:10-CV-473, 2013 WL 2242444 (E.D. Tex. May 21, 2013); *Multimedia Patent Trust v. Apple Inc.*, 10-CV-2618-H KSC, 2012 WL 5873711 (S.D. Cal. Nov. 20, 2012). Neither case says experts need not apportion. To the contrary, both the *Ericsson* and *Multimedia* courts expressly approved the expert testimony at issue because the experts had apportioned. In *Ericsson*, the court allowed the expert to testify precisely because the expert had properly apportioned “on two different levels” to limit his royalty to the “market value of the contribution of the asserted patents to the end products,” and “not the market value

of the end products” as a whole. *Ericsson*, 2013 WL 2242444 at \*2-3. In *Multimedia*, the court found the expert’s per-unit calculations to be proper because the expert did not attempt to base his royalty on the entire market value of the accused products, but instead, limited himself to the value attributable to the patented invention alone. *Multimedia*, 2012 WL 5873711 at \*5 (“Mr. Yurkerwich’s \$1.50 per unit royalty does not rely on the entire market value of Defendants’ accused products, and the entire market value rule does not apply.”).

What matters is whether the expert separated the value of the patented feature from the value that the accused product derives from the prior art, *not* whether the expert chose to express his opinion as a per-unit royalty.<sup>1</sup> *Lucent*, 2011 WL 2728317 at \*6.

**4. Bero cannot avoid the apportionment rule by limiting his calculations to revenues earned on sales of MDFVs.**

Third, an expert can not avoid the apportionment rule by calculating damages based on revenues on sales of the “smallest salable patent-practicing unit” if, as is undisputedly the case here, the “smallest salable patent-practicing unit” *itself* consists of patented and unpatented features. *AVM Technologies, LLC v. Intel Corp.*, CIV.A. 10-610-RGA, 2013 WL 126233 \*2-3 (D. Del. Jan. 4, 2013) (excluding expert testimony because expert failed to apportion value of smallest salable patent-practicing unit between patented and unpatented features and failed to satisfy EMVR exception to apportionment rule); *Lucent Technologies, Inc. v. Microsoft Corp.*, 837 F. Supp. 2d 1107, 1118 (S.D. Cal. 2011) (holding expert must apportion value between patented and unpatented features of Outlook software program, notwithstanding that Outlook is smallest salable patent-practicing unit); *Mirror Worlds, LLC v. Apple, Inc.*, 784 F. Supp. 2d 703,

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<sup>1</sup> In seeking to distinguish Bero’s analysis from every other expert who has been taken to task for failing to apportion, Sloan argues that Bero does not base his royalty on Zurn’s sales revenues. Sloan Br. p. 10. Sloan is wrong. [REDACTED]



726 (E.D. Tex. 2011) (rejecting patentee’s claim that because its expert started with the smallest saleable units in his damages calculation, he did not need to apportion).

As Sloan correctly notes, the Federal Circuit has observed that “it is generally required that royalties be based not on the entire product, but instead on the ‘smallest salable patent-practicing unit.’” *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51 (Fed. Cir. 2012). What Sloan misunderstands is that satisfying the “smallest salable patent-practicing unit” test is necessary, but not sufficient to proving damages based on sales of products that include both patented and unpatented features. If the smallest salable patent-practicing unit also consists of patented and unpatented features, the expert must further apportion value to prevent a jury from awarding damages in excess of the value of the patent’s specific contributions to the art. *AVM Technologies*, 2013 WL 126233 at \*2-3; *Lucent*, 837 F. Supp. 2d at 1118; *Mirror Worlds*, 784 F. Supp. 2d at 726.

Sloan does not deny MDFVs<sup>2</sup> include unpatented, nonaccused features, such as the antimicrobial handle and the prior-art full-flush design used to evacuate the bowl no matter what is in it. *See* Sloan Br. pp. 16-17 (noting the similarities between the MDFV and a manual single flush valve). Accordingly, Bero was required to apportion the value of the MDFV between the patented and unpatented features.<sup>3</sup>

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<sup>2</sup> MDFVs are not the smallest salable patent-practicing units, by Sloan’s own admission – the manual dual flush handles that the parties use to retrofit a manual single flush valve are the smallest salable patent-practicing units and are in fact a sizeable portion of the sales Sloan accuses of infringing. *See* Sloan Br. p. 28 (distinguishing handles from “complete valves”). But, because Bero should be excluded even *if* complete MDFVs were the smallest salable patent-practicing unit, Sloan’s error in identifying the smallest salable patent-practicing unit is immaterial.

<sup>3</sup> Bero’s failure to apportion is particularly inexcusable considering how easily Bero could have honored his obligation. Sloan admits the only difference between the single flush valve and the MDFV is the latter’s *dual* flush feature. Sloan Br. p. 17. That feature, then, is the patented improvement. And, its value can be no more than the difference between the amount customers pay for the manual single flush valve and the amount customers pay for the MDFV, [REDACTED]. *See* Dkt. 558-1, Bero Rebuttal Report, p. 14.

That the '635 Patent claims are broadly written to claim unpatentable features (e.g., the “body”) covered by the prior art does not change the result. The value of the '635 Patent is limited to the benefits derived specifically from those *innovative* features of the claimed device that met the criteria for patentability (if any). That the patent claims are broadly stated *confirms* the need for apportioning value between the features that exist in the prior art and the features that constitute improvements over the prior art:

When a patent is for an improvement, and not for an entirely new machine or contrivance, the patentee must show in what particulars his improvement has added to the usefulness of the machine or contrivance. He must separate its results distinctly from those of the other parts, so that the benefits derived from it may be distinctly seen and appreciated.

*Garretson v. Clark*, 111 U.S. 120, 121 (1884). [REDACTED]

[REDACTED]

[REDACTED]

**5. Bero had to prove the basis for customer demand through scientific study of demand sensitivities to invoke the EMVR exception.**

The Federal Circuit recognizes only one exception to the apportionment rule: If the patentee proves that “the patented feature creates *the* basis for customer demand,” i.e., “the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature” the patentee can invoke the Entire Market Value Rule and use the full value of the revenues on Accused Sales to calculate its damages. *Uniloc USA, Inc.*, 632 F.3d at 1318 (emphasis added). The EMVR applies only in an exceptional case: the “Federal Circuit has emphasized that this test can only be met by showing that the patented feature *alone* causes customers to purchase the accused products.” *AVM Technologies*, 2013 WL 126233 at \*2 (emphasis added).

Again, the law is unambiguous: to invoke the EMVR, Sloan had to prove that the patented improvement is the *entire* basis for customer demand and must do so through econometric studies, admissible customer surveys, regression analyses, or other fact-based evidence of demand sensitivities. *LaserDynamics, Inc.*, 694 F.3d at 69 (affirming district court grant of new trial on damages because expert failed to satisfy EMVR evidentiary burden; he “never conducted any market studies or consumer surveys to ascertain whether the demand for a laptop computer is driven by the patented technology”); *Inventio Ag v. Otis Elevator Co.*, 06 Civ. 5377(CM), 2011 WL 3359705 \*4 (S.D.N.Y. June 23, 2011) (“In order to be ‘competent,’ Inventio’s evidence must suggest a ‘sound economic connection;’ the Chief Judge of the Federal Circuit has suggested the use of econometric studies, customer surveys, regression analysis or other marketplace-wide evidence of demand sensitivities to satisfy this requirement.”) (citing *Cornell Univ. v. Hewlett-Packard Co.*, 01-CV-1974, 2008 WL 2222189, \*3 (N.D.N.Y. May 27, 2008) (Rader, C.J. sitting by designation)).

Sloan admits Bero does not offer this type of evidence, but claims Bero did not have to. Again, Sloan’s view is that the rules do not apply to Bero. *See* Sloan Br. p. 18. And, again, Sloan is wrong. First, the EMVR does *not* apply if the plaintiff “merely” shows “the patented invention motivated customers to buy the product in question.” Sloan Br. p. 14. Sloan must show that the patented invention, and the patented invention alone, drove customers to buy the product in question. *AVM Technologies*, 2013 WL 126233 at \*2; *Inventio*, 2011 WL 3359705 at \*4 (EMVR does not apply if “other features of a product contributed to the customer’s decision”).

Second, whatever types of evidence might have passed muster a decade ago (as reflected in the outdated cases Sloan cites, *see* Sloan Br. pp. 15-16), the Federal Circuit has unequivocally

held that it now requires econometric studies, admissible customer surveys, regression analyses, or other fact-based evidence of demand sensitivities. *See LaserDynamics, Inc.*, 694 F.3d at 69; *Inventio*, 2011 WL 3359705 at \*4. It is no longer enough to show that the patented technology “is viewed as valuable, important, or even essential.” *LaserDynamics*, 694 F.3d at 68. It is no longer enough to show that the accused products would not be commercially viable without the patented technology, *id.*, something Sloan could not prove in any event because it is undisputed that the prior art full-flush design is commercially successful. To curb excessive damage verdicts such as Sloan seeks here, the Federal Circuit now requires more than conjecture; the Federal Circuit requires *scientific* evidence. *LaserDynamics*, 694 F.3d at 68; *Uniloc*, 632 F.3d at 1320.

Bero cannot opine that 100% of the revenues earned on MDFV sales are attributable to the patented feature of the MDFV unless he proves that fact by scientifically studying the market and customer purchasing preferences. *Cornell*, 2008 WL 2222189 at \*3 (excluding expert who failed to “offer a single demand curve”). The Federal Circuit now will not allow experts such as Bero to rely exclusively on testimony of party employees or the parties’ marketing materials, and certainly not on *inferences* to be drawn from the fact that customers paid more for the MDFV than they would have had to pay for a manual single flush valve. This last “fact” on which Bero relies simply begs the question the Federal Circuit requires Bero to answer: Why do customers buy MDFVs?

That Sloan employees believe they know the answers to this questions, and that Bero finds the employees credible, is not enough to satisfy the Federal Circuit’s evidentiary standard. This is especially true where Sloan witnesses also candidly admitted that there are many factors beside the low flush feature that drive MDFV customers’ purchasing decisions, including the

antimicrobial handle, the prior art full-flush feature, business convenience, distributor and manufacturer reputation and many other considerations not dependent on the patented feature, *see* Dkt. 558-14, Madison Depo. 27:12-47:11; Dkt. 558-15, Smith Depo. 26:17-33:3. *Inventio*, 2011 WL 3359705 at \*4 (EMVR does not apply if “other features of a product contributed to the customer’s decision”).

Bero failed to offer required proof to satisfy the EMVR exception to the apportionment rule. Accordingly, Sloan cannot invoke the EMVR rule, and Bero had to apportion the lost profits he considered.

**B. Bero Cannot Include in His Calculations Lost Profits Attributable to Sales of Unpatented Collateral Goods.**

**1. Sloan admits Bero includes lost profits attributable to sales of unpatented collateral goods.**

The Federal Circuit’s rule regarding lost profits on sales of collateral goods is well-established: a patentee can only include the actual profits earned on sales of non-infringing collateral products in its royalty calculations if the patentee satisfies the EMVR, proves the non-infringing collateral products are “sold together” (i.e., simultaneously) with infringing products, and further proves the infringing and non-infringing products constitute a “functional unit”:

The entire market value rule in the context of royalties requires adequate proof of three conditions: (1) the infringing components must be the basis for customer demand for the entire machine including the parts beyond the claimed invention; (2) the individual infringing and non-infringing components must be *sold together* so that they constitute a *functional unit* or are parts of a complete machine or single assembly of parts; and (3) the individual infringing and non-infringing components must be analogous to a *single functioning unit*. *It is not enough that the infringing and non-infringing parts are sold together for mere business advantage*. Notably, these requirements are additive, not alternative ways to demonstrate eligibility for application of the entire market value rule.

*Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279, 286-87 (N.D.N.Y. 2009) (Rader, C.J. sitting by designation) *amended*, 01-CV-1974, 2009 WL 1405208 (N.D.N.Y. May 15, 2009) (citations omitted).

Sloan admits (1) Bero includes lost profits – [REDACTED] – on sales of unpatented collateral goods in calculating his per-unit royalty, (2) the collateral sales do not necessarily occur simultaneously with the sale of the patented goods, (3) the collateral goods and patented goods do not constitute a “functional unit,” and (4) Bero does not offer any econometric studies, admissible customer surveys, regression analyses, or other fact-based evidence of demand sensitivities to support his opinion that the sale of the patented good drove the sale of the collateral good, and not the other way around. *See* Sloan Br. pp. 4, 6, 19-24. Again, Sloan’s response is that the rules do not apply to Bero. *See id.*

**2. Bero cannot avoid the Federal Circuit’s rules regarding lost profits on collateral sales by including the profits in his calculation and calling it a royalty.**

And, again, Sloan is wrong. The Federal Circuit does not allow Bero to *quantitatively* calculate and include the full value of purported lost profits on collateral sales in the royalty figure he offers unless he satisfies the rules Zurn cites. *Cornell Univ.*, 609 F. Supp. 2d at 286-87. Instead, the Federal Circuit allows Bero to “consider” collateral sales in calculating a reasonable royalty – he can *qualitatively* account for the collateral sales by nudging his royalty up or down based on the fact that collateral sales occur, but that is all he can do. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co Ltd.*, CIV. A. 88-1814-MA, 1993 WL 1510657 (D. Mass. Apr. 27, 1993) (“[Convoyed sales] do not create a separate sum on which the royalty is calculated.”).

The legal authorities that Sloan cites and quotes confirm that Zurn is right. On page 21, Sloan recites the law as follows:

Thus, *Rite Hite* holds that while *a jury may not award lost profits on lost conveyed sales of unpatented products that are not “functionally related”* to the patent product, the jury may take those anticipated lost profits on conveyed sales into account in determining the reasonable royalty rate to be assessed against the infringer for its sales of the infringing product.

Sloan Br. p. 21 (emphasis added). In Sloan’s own words, “a jury may not award lost profits on lost conveyed sales of unpatented products that are not ‘functionally related.’” *Id.* Yet, this is precisely what Bero will ask the jury to do because he has quantified [REDACTED]

[REDACTED]. See Sloan Br. p. 6. Bero admits as much: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. See Dkt. 558-2, Bero Depo. 73:23-74:8.

Later in its brief, Sloan quotes the Seventh Circuit Civil Jury Instruction:

the existence of such conveyed sales may be taken into account in setting a reasonable royalty rate, whether or not any functional relationship exists between the two. However, *lost profits may only be recovered on the subset of conveyed products for which a functional relationship exists.*

Sloan Br. p. 21 (emphasis added). Bero’s royalty rate violates the very instruction Sloan quotes by including lost profits on conveyed products for which *no* functional relationship exists, again, as Bero himself admits. See Dkt. 558-2, Bero Depo. 74:16-19, 75:19-24, 76:1-8.

Sloan reads these authorities to permit recovery of lost profits as long as damages are called a “reasonable royalty.” Sloan’s reading is absurd. It would make no sense to bar lost profits as “lost profits” but allow the jury to award lost profits that are called a “reasonable royalty.” Doing so would create an obvious loophole that would swallow all of the jurisprudence carefully constructed by the Federal Circuit to rein-in overreaching lost profits awards – simply

follow Bero's lead: quantify 100% of the purported lost profits, divide them by the number of accused sales, and call the result a per unit "royalty."<sup>4</sup>

Nor can Bero avoid the Federal Circuit rules that bar Sloan from recovering lost profits on collateral sales by assuming Sloan would have expected to recover such lost profits in entering the hypothetical negotiation. *See* Sloan Br. p. 6. It is irrelevant whether Sloan unreasonably anticipated earning lost profits to which it is not legally entitled under the Federal Circuit's lost profits jurisprudence.

Instead, the rule must be (and is) that a patentee can bump up its royalty rate by a percent or two if it would also expect to make collateral sales; but, the patentee cannot include full, actual lost profits on collateral sales unless the patentee satisfies the EMVR and "functional unit" tests. *Cornell Univ.*, 609 F. Supp. 2d at 286-87; *Rite-Hite Corp. v. Kelley Co., Inc.*, 56 F.3d 1538, 1551 (Fed. Cir. 1995). Additional authorities that Sloan cites and on which Sloan relies confirm that Zurn is right. In *Micro Chem.*, for example, the Federal Circuit upheld the district court's pre-trial ruling barring the patentee's expert from including the *profits* lost on collateral sales in his royalty analysis, while allowing the expert to consider only the *existence* of collateral sales as a qualitative factor bearing on the royalty rate. *Micro Chem., Inc. v. Lextron, Inc.*, 317 F.3d 1387, 1393 (Fed. Cir. 2003). ("Before trial, the district court ruled that Micro Chemical *could not include sales of non-patented items in the royalty base* but could demonstrate that those sales were relevant in determining a reasonable royalty. That ruling is consistent with one of the *Georgia-Pacific* factors – '[t]he effect of selling the patented specialty in promoting sales

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<sup>4</sup> [REDACTED] does not excuse his failure to follow Federal Circuit law in his underlying calculation of Sloan's alleged lost profits. Allowing any such excuse would also create an obvious loophole in Federal Circuit law – simply quantify otherwise unrecoverable lost profits and shave some arbitrary, small portion off the top to avoid all of the lost profits rules. [REDACTED]



of other products of the [infringer].”). Indeed, preserving the distinction between permissible qualitative consideration and impermissible quantitative calculation is exactly what the Federal Circuit was concerned about when it counseled: “In *Rite-Hite*, this court clarified that ‘the relevance of anticipated collateral sales to the determination of a reasonable royalty *rate*’ is not to be confused with the application of the entire market value rule to a determination of the royalty base.” *Minks v. Polaris Indus., Inc.*, 546 F.3d 1364, 1373 (Fed. Cir. 2008).

Because there is no difference, logically, legally, practically, economically or in any other way between what Bero has done in including lost profits on collateral sales in his royalty and what the Federal Circuit forbids, Bero’s testimony should be excluded.

### **3. Bero failed to satisfy the EMVR for sales of collateral goods.**

Because Bero admits that he included lost profits on sales of collateral goods that do not meet the “functional unit” test, the Court can exclude Bero’s testimony without analyzing whether Bero also failed to prove that the patented invention is the basis for customer demand for the collateral goods. *Cornell Univ.*, 609 F. Supp. 2d at 286-87 (noting that proving the basis for customer demand and satisfying the “functional unit” test are “additive” requirements, “not alternative ways to demonstrate eligibility for application of the entire market value rule”). But, it is important to note that the EMVR analysis for collateral sales is separate and distinct from the EMVR analysis discussed above on pages 6-8, though the same strict evidentiary rules apply.

Here is the distinction: whether, as Bero claims, it is self-evident that the ‘635 Patent drives sales of *patent-practicing* MDFVs, it is *not* at all self-evident that the ‘635 Patent is *the basis* for customer demand for independent, non-functionally related, *unpatented* collateral goods, often sold separately, and sometimes *before* any sale of the Patented or Accused Products, (begging the question could the *subsequent* sale of an Accused or Patented Product have driven the *antecedent* sale of an unpatented collateral good?). *Uniloc USA, Inc.*, 632 F.3d at 1318.

To recover damages based on sales of collateral goods, Sloan must satisfy the EMVR *for those collateral goods*. *Uniloc USA, Inc.*, 632 F.3d at 1318; *Rite-Hite Corp. v. Kelley Co., Inc.*, 56 F.3d 1538, 1551 (Fed. Cir. 1995) (“It is a clear purpose of the patent law to redress competitive damages resulting from infringement of the patent, but there is no basis for extending that recovery to include damages for items that are neither competitive with nor function with the patented invention.”). To satisfy the EMVR, Bero must prove through econometric studies, admissible customer surveys, regression analyses, or other fact-based evidence of demand sensitivities that the ‘635 Patent is the basis for demand not just for the Accused Products, *but also for the collateral goods*. *LaserDynamics, Inc.*, 694 F.3d at 69; *Inventio*, 2011 WL 3359705 at \*4; *Cornell Univ.*, 2008 WL 2222189, at \*3. Bero presents none of this required evidence, providing another reason to exclude his analysis.

### **C. Bero Cannot Split the Difference Between the Parties’ Positions.**

The Federal Circuit holds that royalty opinions cannot be based on “an arbitrary, general rule, unrelated to the facts of this case.” *Uniloc USA, Inc.*, 632 F.3d at 1318 (granting new trial on damages based on the expert’s use of the 25% general rule of thumb allocating profits between patentee and accused infringer); *LaserDynamics, Inc.*, 694 F.3d at 69 (affirming grant of new trial on damages where damages expert’s testimony was based on arbitrary apportionment ratio “plucked out of thin air,” unsupported by economic analysis); *Multimedia Patent Trust*, 2012 WL 5873711 at \*9 (excluding expert testimony based on generic industry data that was “not tethered to the relevant facts and circumstances of the present case”). Instead, the expert’s analysis “must be tied to the relevant facts and circumstances of the particular case at issue and the hypothetical negotiations that would have taken place in light of those facts and circumstances at the relevant time.” *Uniloc*, 632 F.3d at 1318; *Grain Processing Corp. v. Am. Maize-Products Co.*, 185 F.3d 1341, 1350 (Fed. Cir. 1999) (“To prevent the hypothetical from

lapsing into pure speculation, this court requires sound economic proof of the nature of the market and likely outcomes with infringement factored out of the economic picture.”).

Sloan admits that Bero split the difference between the parties’ bargaining positions – the maximum royalty Zurn would pay and the minimum royalty Sloan would accept – and did so without offering any *quantitative* rationale tied to the facts of this case or even historical facts about how companies in this industry close such gaps during negotiations. *See* Sloan Br. p. 24-25. But, Sloan says there is nothing wrong with what Bero did because Bero “qualitatively,” not “arbitrarily,” decided to start his analysis at [REDACTED]. *Id.*

Again, Sloan is wrong. *LaserDynamics*, 694 F.3d at 69 (“This complete lack of economic analysis to *quantitatively* support the one-third apportionment echoes the kind of arbitrariness of the “25% Rule” that we recently and emphatically rejected from damages experts, and would alone justify excluding Mr. Murtha's opinions in the first trial.”). Sloan’s argument is another attempt to avoid Federal Circuit rules through semantics. The Federal Circuit requires “sound economic and factual predicates,” not “[REDACTED],” “qualitative” rules of thumb. *See Riles v. Shell Exploration and Prod. Co.*, 298 F.3d 1302, 1311 (Fed.Cir.2002); *see also Grain Processing Corp.*, 185 F.3d at 1350; *Crystal Semiconductor Corp. v. TriTech Microelectronics Intern., Inc.*, 246 F.3d 1336, 1355 (Fed.Cir.2001) (“Such market reconstruction, though hypothetical, requires ‘sound economic proof of the nature of the market.’”).

Bero abandoned whatever “sound” proof he had when he decided to start his analysis at \$[REDACTED] per-unit, [REDACTED] more per-unit than his own calculations show Zurn would be willing to pay

and \$[REDACTED] less than he had calculated Sloan would accept based on real world profit figures.<sup>5</sup> See Sloan Br. pp. 6-7. As a result, Bero's analysis fails the Federal Circuit's test.

**D. Bero Had to Conduct a Scientific Analysis of Price Elasticity.**

**1. Sloan admits Bero did not conduct an inelasticity analysis.**

The Federal Circuit's rules regarding damages for price erosion are unambiguous: if a patentee seeks damages based on price erosion, the patentee must conduct an economic study of the price elasticity of demand, particularly where the patentee claims, as Sloan does, that it could have significantly raised prices on the Patented and Accused Products without losing any of its own or the Accused Sales. *Crystal Semiconductor*, 246 F.3d at 1357. As the Federal Circuit has explained, Sloan must conduct such a study because it is well-established under the economic "law of demand" that as prices rise, consumers buy fewer goods (i.e., nearly all demand curves are downward sloping):

In a credible economic analysis, the patentee cannot show entitlement to a higher price divorced from the effect of that higher price on demand for the product. In other words, the patentee must also present evidence of the (presumably reduced) amount of product the patentee would have sold at the higher price.

*Id.*

Sloan admits Bero did not conduct a scientific study of price elasticity, but argues Bero's failure to do so is not fatal for two reasons: (1) "there is no such *per se* rule" requiring credible economic proof even where the patentee claims demand is perfectly inelastic (i.e., the demand

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<sup>5</sup> Zurn's *Daubert* challenge is not based on Bero's decision to award to Sloan damages [REDACTED] on the Accused Sales. As a result, cases like *Powell v. Home Depot U.S.A., Inc.*, 663 F.3d 1221, 1238 (Fed. Cir. 2011) simply do not apply. See Sloan Br. p. 9, fn. 8. However, it is worth noting that in cases like *Powell*, the reason damages may exceed the infringer's profits on accused sales is that the infringer will nevertheless receive other benefits sufficient to offset the losses it suffers in agreeing to a license that exceeds its profits, for example, cost-savings in other areas. *Powell*, 663 F.3d at 1240-41. [REDACTED]

curve is vertical, not downward sloping) as Bero assumes is the case here; and (2) there are no acceptable non-infringing alternatives for customers to choose to avoid paying Sloan's assumed much higher prices. Sloan Br. pp. 25-31. Sloan is wrong on both counts for several reasons.

**2. Bero cannot avoid the rule requiring a scientific study of price elasticity.**

Regarding Sloan's first defense, Sloan is wrong about the rule requiring credible economic proof of price elasticity: the rule is a *per se* rule. *Crystal Semiconductor*, 246 F.3d at 1357. To support its claim to the contrary, Sloan misrepresents the Federal Circuit's decision in *Ericsson, Inc. v. Harris Corp.*, 352 F.3d 1369 (Fed. Cir. 2003), claiming the decision serves as an example of a case in which the Federal Circuit affirmed an award of damages based on price erosion even though the patentee's expert had *not* conducted a credible economic study of price elasticity. Sloan Br. pp. 26-27.

That is not what happened in *Ericsson*. There, the Federal Circuit expressly held that the patentee's expert's "benchmark methodology" *constituted* a credible economic study, proving the inelasticity of demand. *Ericsson*, 352 F.3d at 1378-79. The alleged infringer had challenged the expert's testimony *not* because he failed to conduct a study, but because he had concluded that demand was perfectly inelastic, which the infringer argued was inconsistent with the court's holding in *Crystal Semiconductor*. The Federal Circuit rejected the infringer's characterization of *Crystal Semiconductor* as standing for the proposition that demand is never perfectly inelastic, and confirmed that whether demand in the relevant market in fact is perfectly inelastic is something the patentee must prove by *conducting a credible economic study of price elasticity* – precisely what Zurn says Bero had to do, and Sloan admits Bero failed to do. *Id.*

If Zurn had challenged the admissibility of Bero's opinion on the basis of his conclusion that the demand for MDFVs is perfectly inelastic, *Ericsson* might offer some support for Sloan.

However, Zurn challenges the admissibility of Bero's opinions because he failed to conduct the scientific analysis of price elasticity required by law to support his conclusion that the demand curve for MDFVs is vertical and therefore perfectly inelastic. The Federal Circuit's holding in *Ericsson* simply confirms that Zurn is right about the rule – like the expert in *Ericsson*, Bero had to conduct a scientific study.

Regarding Sloan's second defense, Sloan is wrong about (1) the acceptability of non-infringing alternatives, (2) what the Federal Circuit rules required Bero to do to prove that there are no acceptable non-infringing alternatives, and (3) the significance of the absence of acceptable non-infringing alternatives, *if* it were true that there were none.

Sloan witnesses (including Bero) universally agree that there is at least one acceptable non-infringing alternative in some segment of the market: the 1.28 gpf flush valves and bowls for new construction projects. Dkt. 558-2, Bero Depo. 129:6-130:12, 141:3-142:3; Dkt. 567-28 through 31, Smith Depo. 56:18-58:21; Dkt. 567-32 through 36, Bero Depo. 129:6-130:12, 141:3-142:3; Dkt. 565-13 through 15, Madison Depo. I 110:18-114:9, 112:7-114:9, 115:14 to 118:5; Dkt. 565-16 through 17, Madison Depo. II 80:13-86:5; Dkt. 565-1 through 3, Allen Depo. II 44:7-45:20, 112:11-113:17, 134:10-135:8, 136:9-17, 138:5-20; Dkt. 554-5, Ballanco Depo. 150:6-152:17, 166:16-167:5; Dkt. 570-5 through 7, Ballanco Report, p. 38.

Because Bero does not eliminate *any* sales made for new construction from the Accused Sales included in his price erosion damage calculations, and because his Accused Sales include *all* MDFV product sales through the present and even beyond – to October 15, 2013, *see* Sloan Br. p. 7 – which sales include sales made for new construction, Bero was required to account for the impact of this undisputedly acceptable non-infringing alternative on Sloan's ability to charge its assumed higher prices. Because he failed to do so, his testimony should be excluded.

The result would be the same (Bero should be excluded) even if Sloan witnesses had not admitted the acceptability of 1.28 gpf flush valves. Here's why: Sloan admits Bero failed to conduct any scientific analysis of demand sensitivities. *See* Sloan Br. p. 18. As a result, Bero has no market data or admissible information from actual consumers from which to conclude that the alternatives Sloan seeks to disqualify are so "unsatisfactory" that Sloan could have significantly increased prices on both its own sales and the sales made by Zurn to Zurn's admittedly price sensitive customers and still sell every single unit, with no reduction in total unit sales, as Bero says it could have done. *See* Sloan Br. p. 28.

This failing is fatal to Bero's analysis. "[T]o prove that there are no acceptable noninfringing substitutes, the patent owner must show either that (1) the purchasers in the marketplace generally were willing to buy the patented product for its advantages, or (2) the specific purchasers of the infringing product purchased on that basis." *Standard Havens Prods., Inc. v. Gencor Indus.*, 953 F.2d 1360, 1373 (Fed. Cir. 1991). Either way, the patentee "must first demonstrate that consumers are actually motivated to purchase because of a particular [feature] available only from the patented product before it can begin to rule out a non-infringing product as an acceptable substitute." *Advanced Med. Optics, Inc. v. Alcon, Inc.*, 361 F. Supp. 2d 404, 420 (D. Del. 2005).

As cases such as *LaserDynamics* confirm, the Federal Circuit requires strong, *scientific* evidence that consumers are actually motivated to purchase because of a particular patented feature; the expert cannot offer opinions regarding consumer motivations without supporting the opinions with econometric studies, admissible customer surveys, regression analyses, or other fact-based evidence of demand sensitivities. *LaserDynamics, Inc.*, 694 F.3d at 69; *Grain Processing*, 185 F.3d at 1350 ("To prevent the hypothetical from lapsing into pure speculation,

this court requires sound economic proof of the nature of the market and likely outcomes with infringement factored out of the economic picture.”). Sloan admits Bero can not offer any of these, having failed to conduct any scientific study of demand. *See* Sloan Br. p. 18 (arguing Bero did not have to conduct any such study). It follows that Bero can not opine that customers purchase MDFVs for any one reason, much less because of the patented feature; therefore, he can not opine that customers would reject as “unacceptable” *all* non-infringing alternatives.

As Sloan correctly notes, “[i]f purchasers are motivated to purchase because of particular features available only from the patented product, products without such features – even if otherwise competing in the marketplace – would not be acceptable non-infringing substitutes.” Sloan Br. p. 29. But, unless and until Bero proves the big, conditional “if” that begins the rule Sloan quotes, and does so through the kinds of evidence the Federal Circuit now requires, Bero cannot rely on the absence of non-infringing alternatives to support his price erosion theory. *See Slimfold Manufacturing Co. v. Kinkad Industries*, 932 F.2d 1453, 1458 (Fed. Cir. 1991) (holding alleged non-infringing alternatives that lack advantages of patent are “unacceptable” only “if it is shown that consumers specifically want a device with those advantages”); *TP Orthodontics, Inc. v. Professional Positioners, Inc.*, No. 72–C–697, 1991 WL 187189 \*9 (E.D. Wis. July 2, 1991) (holding that plaintiff failed to meet its burden of showing the absence of acceptable non-infringing alternatives since the plaintiff failed to present “evidence illustrating how strongly [the defendant’s] customers felt about [the patented feature of the product], compared to how strongly they felt about all the other ... options” offered by the defendant’s product).

Finally, the result would be the same (Bero should be excluded) even *if* Sloan had carried its burden of proving there were no acceptable non-infringing alternatives for MDFVs because



the same *per se* rule recited above would apply: Bero still had to conduct an elasticity study. *Crystal Semiconductor* and other recent Federal Circuit decisions confirm that experts must respect the laws of economics, including the “law of demand” under which the quantity demanded of a good nearly always declines as its price increases. *Crystal Semiconductor*, 246 F.3d at 1357. This is true even if there are no alternatives and the supplier in question is a monopolist with no competition because some consumers will simply refuse to buy and do without the good.<sup>6</sup> It follows that even *if* there were no acceptable noninfringing alternatives, the Federal Circuit rules required Bero to develop economic proof, not anecdotes, that none of the customers who purchased Accused Products fit in the category of those who would simply do without, rather than pay the prices Bero assumes Sloan would charge.

Indeed, in *SynQor, Inc. v. Artesyn Techs, Inc.* – the case Sloan relies on most heavily – the trial court allowed the expert to testify regarding price erosion damages upon expressly finding that the expert “did take into account elasticity *by excluding certain units from his lost profits base.*” *SynQor, Inc. v. Artesyn Techs, Inc.*, No. 2:07-CV-497, 2010 U.S. Dist. LEXIS 144244, \*14 (E.D. Tex. Dec. 13, 2010). Because the expert *respected* the law of demand by reducing the number of sales to account for the assumed higher price at which the patentee would sell its products, the expert was allowed to testify. Here, in stark contrast to *SynQor*, Bero has specifically refused to reduce the number of sales Sloan would make at its assumed higher price, completely and impermissibly *ignoring* the law of demand. *See* Sloan Br. p. 31. And he did so without the economic proof of price sensitivities, ignoring the law of the Federal Circuit.

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<sup>6</sup> “Be careful of saying that ‘monopolies can charge any price they like’ – this is wrong.” *See* [http://Tutor2u.net/economics/content/topics/monopoly/monopoly\\_profits.htm](http://Tutor2u.net/economics/content/topics/monopoly/monopoly_profits.htm).

**E. Bero Cannot Include Price Erosion Damages For Pre-Issuance Conduct.**

Zurn's motion is premised on 35 U.S.C. § 154(d)(1) – the statute that authorizes recovery of pre-issuance, provisional remedies – which exclusively limits the remedies available for pre-issuance activities to a royalty, barring lost profits, including a price erosion theory of recovery.

Sloan says so what? Sloan denies that Bero seeks price erosion damages for Zurn's pre-issuance activities and further, argues that Bero does not offer a lost profits opinion at all; he opines that [REDACTED]

[REDACTED] Sloan Br. p. 31. Sloan is wrong on both counts.

First, Bero includes price erosion damages in the "pricing effect" he includes in his per-unit royalty rate. Elsewhere Sloan admits to this semantical trick. Sloan Br. pp. 6-7 (discussing inclusion of "pricing effect" in Bero's calculations, and addition of price erosion not otherwise "captured in the reasonable royalty rate"). Sloan simply grows forgetful by the end of its brief and tries to slip its denial of this key fact past the Court. Notwithstanding Sloan's forgetfulness, Bero admits, as he must, that price erosion is a form of lost profits, and that the "pricing effect" he includes in the royalty rate calculation applied to pre-issuance Accused Sales is calculated the same way as the additional price erosion claim he asserts for post-issuance Accused Sales. *See* Dkt. 558-2, Bero Depo. 69:5-22, 79:18-23. There can be no doubt that Bero seeks price erosion damages for Zurn's pre-issuance activities.

Second, because Bero included the full amount of lost profits on sales of Accused and Patented Products *and* collateral goods in his pre-issuance royalty calculations, he offers a lost profits opinion, no matter how he ultimately chooses to express the award he seeks. Again, it is irrelevant that Sloan allegedly would have anticipated (in defiance of basic economic principles) earning these lost profits but for licensing Zurn. *See* Sloan Br. p. 31. Sloan's unreasonable

expectations do not trump the limitations Congress has placed on Sloan's legal rights, including the limitations on Sloan's ability to recover for pre-issuance conduct.

### **III. CONCLUSION**

Bero admitted his analysis is unorthodox, yielding results that are "backwards" compared to the norm. Zurn Opening Brief, Exh. B, 67:13-68:17. This is precisely the type of patent damage claim that one authority has said "cries out for strict application" of the Court's gatekeeping function under *Daubert*. *Federal Judicial Center Bench Book*, "Compensatory Damages Issues in Patent Cases" 2011, p. 28. No jury should be allowed to hear Bero's legally and logically flawed analysis. Zurn's motion to exclude should be granted.

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Respectfully submitted,

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